

IN THE CLAIMS:

Please amend the claims as follows:

1. (Twice Amended) Apparatus for the encoding of relative position comprising a first substrate having a first plurality of light transmitting and light blocking regions forming in aggregate a first object pattern of juxtaposed stripes in an object plane; a second substrate positioned relative to and/or spaced from said first substrate; first convergent means fixed to said second substrate for substantially collimating in a first orthogonal plane, being orthogonal to said object plane, light from points of said first object pattern to reimaging said light plane corresponding to said first object pattern; and first image detection means positioned at said first image plane for capturing a first image portion comprising a portion of said first image pattern, wherein said first image portion, corresponding to said juxtaposed stripes, has alternating and juxtaposed light and dark regions the widths, by determination in use of at least one thereof, and sequence of which unambiguously define the location of said first image portion within said first image pattern along a first image axis corresponding to a first object axis at said first object pattern whereby the relative position along said first object axis of the first substrate relative to the second substrate is determined.

12. (Amended) Apparatus as claimed in claim 1 in which at

A3
cont'd.

least one of the image detection means comprises a linear CCD array.

14. (Twice Amended) A method for encoding the position of a first substrate relative to a second substrate which comprises the steps of forming a first object pattern in an object plane by providing a first plurality of light transmitting and light blocking regions in the form of juxtaposed stripes on said first substrate; providing first convergent means fixed to said second substrate and positioning said second substrate relative to and/or spaced from said first substrate; substantially collimating with said first convergent means in a first orthogonal plane light from points of said first object pattern and reimaging said light in a first image plane to form a first image pattern at said first image plane corresponding to said first object pattern; positioning first image detection means at said first image plane and capturing a first image portion comprising a portion of said first image pattern, said method comprising determining, by means of the capturing step, the widths and sequence of light and dark regions within the first image portion and unambiguously defining, thereby, the location of said first image portion within said first image pattern along a first image axis corresponding to a first object axis at said first object pattern and the position along said first object axis of the first substrate relative to the second substrate.